WHAT WE CLAIM IS:

1. A two-dimensional optical scanner, comprising in combination:

a light source,

a scanner unit for scanning a light beam from said light source on the surface to be scanned in a two-dimensional direction, and

a scanning optical system having a non-rotationally symmetric surface, wherein:

said scanner unit has a gimbal structure, and

said scanning optical system comprises a decentered prism having an entrance surface through which a light beam scanned by said scanner unit enters said prism, at least one reflecting surface for allowing a light beam entered from said entrance surface into said prism to be reflected in said prism and an exit surface through which a light beam reflected at said second reflecting surface leaves said prism, wherein at least one of said entrance surface, said reflecting surface and said exit surface comprises a non-rotationally symmetric surface.

2. The two-dimensional optical scanner according to claim 1, wherein:

said decentered prism has a first reflecting surface for allowing a light beam entered from said entrance surface into said prism to be reflected in said prism and a second reflecting surface for allowing a light beam reflected at said first reflecting surface to be reflected in said prism.

3. The two-dimensional optical scanner according to claim 1, wherein:

the respective surfaces of said decentered prism are located such that a light beam from said entrance surface toward said first reflecting surface crosses a light beam from said second reflecting surface toward said exit surface in said prism.

4. The two-dimensional optical scanner according to claim 1, wherein:

at least one surface of said decentered prism also serves as an optical surface through which light from said light source enters said scanner unit.

5. The two-dimensional optical scanner according to claim 4, wherein:

at least one surface of said decentered prism also serves as an optical surface for reflecting light from said light source toward said scanner unit.

6. The two-dimensional optical scanner according to claim 1, wherein:

said scanner unit comprises a scanning mirror,

an axial chief ray of said light beam is reflected at at least two reflecting surfaces while said axial chief ray propagates from said surface to be scanned to said scanning mirror, and

the following two conditions (1) and (2) are satisfied:

$$10^\circ < \Theta 1 < 40^\circ \quad \ldots (1)$$

$$10^\circ < \Theta 2 < 40^\circ \quad \ldots (2)$$

where $\Theta 1$ and $\Theta 2$ are angles that said axial chief ray subtends a normal to said at least two reflecting surfaces at positions where said axial chief ray is incident on said at least two reflecting surfaces; $\Theta 1$ is an angle that said axial chief ray subtends said normal to one of said at least two reflecting surface and $\Theta 2$ is an angle that said axial chief ray subtends said normal to the other of said at least two reflecting surfaces, provided that an axial ray is defined by a light ray that comes out of the surface to be scanned to a center of the scanning mirror.

7. The two-dimensional optical scanner according to claim 1, wherein:

said scanner unit comprises a scanning mirror, and the following condition (3) is satisfied,

$$1^\circ < \Theta m < 45^\circ \quad \ldots (3)$$

where Θm is an angle that a given light ray subtends a normal to a surface at a position where said given light ray is incident on said surface, provided that said given light ray is defined by a light ray that propagates toward a center position of said surface to be scanned.

8. The two-dimensional optical scanner according to claim 1, wherein:

said light source is a light-emitting diode or a laser diode.

9. The two-dimensional optical scanner according

to claim 1, wherein:

said light source includes at least R, G and B wavelengths.

10. The two-dimensional optical scanner according to claim 9, which further comprises an optical synthesis element for synthesizing light rays of at least R, G and B wavelengths.

11. The two-dimensional optical scanner according to claim 9, wherein:

said light source comprises at least emitting portions for emitting said light rays of R, G and B wavelengths, wherein said emitting portions are located such that said light rays of R, G and B wavelengths are mutually shifted.

12. The two-dimensional optical scanner according to claim 11, wherein:

said emitting portions are located in such a way as to have the same scan start positions.

13. The two-dimensional optical scanner according to claim 11, wherein:

said emitting portions are located in such a way as to have different scan start positions, and

modulation is performed at different timings with respect to light rays emitted out of said respective emitting portions.

14. A two-dimensional optical scanner, comprising in combination:

a light source,

a scanner unit for scanning a light beam from said light source on a surface to be scanned in a two-dimensional direction, and

a scanning optical system having a non-rotationally symmetric surface, wherein:

said scanning optical system comprises a decentered prism having at least one reflecting surface and configured into a shape in which a symmetric surface exists,

said scanning optical system is located such that said symmetric surface does substantially include the origin of a screen surface defined by a point of intersection of an optical axis of said scanning optical system with the surface to be scanned, and

said scanning optical system and said scanner unit are located such that one scanning direction is substantially in line with a direction of said symmetric surface.

15. An image display system, comprising in combination:

a light source,

a scanner unit for scanning a light beam from said light source on a surface to be scanned in a two-dimensional direction,

a scanning optical system having a non-rotationally symmetric surface, and

an eyepiece optical system located near said surface to be scanned and having positive power, wherein:

said scanner unit has a gimbal structure, and

said scanning optical system comprises a decentered prism having an entrance surface through which a light beam scanned by said scanner unit enters said prism, at least one reflecting surface allowing a light beam entered from said entrance surface into said prism to be reflected in said prism and an exit surface through which a light beam reflected at said second reflecting surface leaves said prism, wherein at least one of said entrance surface, said reflecting surface and said exit surface comprises a non-rotationally symmetric surface.

16. The image display system according to claim 15, which further comprises a diffusing surface located near said surface to be scanned and having optical diffusibility.

17. The image display system according to claim 15, wherein said diffusing surface has a property such that an angle of diffusion is 20° or smaller at full width where light intensity goes down to 1/10.

18. The image display system according to claim 16, wherein at least two such diffusing surfaces are provided.

19. The image display system according to claim 15, wherein said eyepiece optical system comprises a Fresnel lens.

20. The image display system according to claim 15, wherein said eyepiece optical system comprises a Fresnel reflecting mirror.

21. The image display system according to claim 15, wherein said eyepiece optical system comprises a Fresnel back-surface reflecting mirror.

22. The image display system according to claim 16, wherein said diffusing surface is provided on at least one surface of said eyepiece optical system.

23. The image display system according to claim 15, wherein said decentered prism further comprises a first reflecting surface for allowing a light beam entered from said entrance surface into said prism to be reflected in said prism and a second reflecting surface for allowing a light beam reflected at said first reflecting surface to be reflected in said prism.